On page 1-2, delete paragraph beginning on page 1, line 28, and replace this paragraph with the following in accordance with 37 C.F.R. §1.121. A marked up version showing changes is attached:

However, in such techniques using the three-way catalyst or disclosed in Japanese Patent No. 2600492, it is required to periodically or intermittently supply HC and CO as a reducing agent (reducing component or gas) to promote reduction reaction of NOx. In this connection, HC and CO which has not been consumed in the NOx reduction reaction is required to be oxidized. This will be accomplished by a measure of oxidizing HC and CO by making oxidation reaction simultaneously on the NOx treating catalyst, or another measure of oxidizing excessive HC and CO in a three-way catalyst or the like disposed downstream of the NOx treating catalyst.

On page 28, delete paragraph beginning at line 26, and replace this paragraph with the following in accordance with 37 C.F.R. §1.121. A marked up version showing changes is attached:

Activated alumina powder was impregnated with an aqueous solution of palladium nitrate containing a certain amount of palladium, and then dried at 150°C for 12 hours. Thereafter, the thus impregnated activated alumina powder was fired 400°C for 1 hour thereby to form Pd-carried alumina powder (Powder A) whose concentration of Pd carried was 15.0% by weight.

On page 57, delete paragraph beginning at line 19, and replace this paragraph with the following in accordance with 37 C.F.R. §1.121. A marked up version showing changes is attached:

At the step P302, an engine air-fuel ratio control flag is set. When this flag is set, the fuel injection amount is controlled in such a manner that the air-fuel ratio of air-fuel

mixture to be supplied to the engine becomes rich, under a fuel injection control routine (not shown) executed by the electronic control unit (like that shown in Fig. 2). Accordingly, the air-fuel ratio of exhaust gas to be flown to the NOx trap agent in the catalyst 2 is changed to a rich side (richer than the stoichiometric value).

On page 58, delete paragraph beginning at line 5, and replace this paragraph with the following in accordance with 37 C.F.R. §1.121. A marked up version showing changes is attached:

At a step P305, increment of 1 is made on a count value C for setting the NOx treatment flag. At a step P306, judgment is made as to whether the count value C becomes larger than a certain value CO. When $C \leq CO$, the flow of the processing routine is completed. When $C > CO$, the flow goes to a step P307 at which the NOx treatment flag is reset. When the NOx treatment flag is reset, supply of hydrogen-contained gas is terminated, so that the air-fuel ratio of exhaust gas to be flown into the NOx treating catalyst 2 is restored to the state of being lean (which is the same as that before setting the NOx treatment flag), thus terminating this routine. At step P308, the count value C and the accumulated value of the engine speed ΣNE are set to zero.

In the Claims:

Please cancel claims 3 and 11 without prejudice or disclaimer.

In accordance with 37 C.F.R. § 1.121, please substitute for claims 1, 4-7, 13, 16, 19, 28 and 29 the following rewritten versions of the same claims, as amended. The changes are shown explicitly in the attached "Versions with Markings to Show Changes Made."

1. (Once Amended) An exhaust gas purifying system comprising:

a NOx treating catalyst for reducing NOx disposed in an exhaust gas passageway of a combustion device, to reduce NOx in presence of reducing components in exhaust gas; and

a hydrogen enriching device disposed upstream of said NOx treating catalyst with respect to flow of exhaust gas from the combustion device and arranged to increase a ratio of hydrogen to total reducing components in at least one of combustion gas and exhaust gas so as to meet relations represented by following formulae (1) and (2), when reduction of NOx is carried out by said NOx treating catalyst:

$$[H2 / TR]d > [H2 / TR]u \quad ...(1)$$

$$[H2 / TR]d \geq 0.3 \quad ...(2)$$

where [H2 / TR]u is a ratio between a concentration [H2]u of hydrogen and a concentration [TR]u of total reducing components in at least one of exhaust gas in the exhaust gas passageway upstream of said hydrogen enriching device and combustion gas in a state before undergoing the hydrogen ratio increasing by said hydrogen enriching device; and [H2 / TR]d is a ratio between a concentration [H2]d of hydrogen and a concentration [TR]d of total reducing components in exhaust gas in the exhaust gas passageway upstream of the NOx treating catalyst and downstream of said hydrogen enriching device,

wherein said hydrogen enriching device is at least one selected from the group consisting of a device for producing hydrogen in at least one of combustion gas and exhaust gas, a device for decreasing the reducing components other than hydrogen in at least one of combustion gas and exhaust gas, and a device for suppressing consumption of hydrogen in at least one of combustion gas and exhaust gas.

4. (Once Amended) An exhaust gas purifying system as claimed in claim 1, wherein the device for producing hydrogen in at least one of combustion gas and exhaust gas includes at least one selected from the group consisting of a hydrogen producing

catalyst containing at least one noble metal, and a combustion control device for controlling at least one selected from the group consisting of operating parameters of an internal combustion engine and combinations of the operating parameters, the operating parameters including fuel injection timing, spark timing, opening and closing timings of intake and exhaust valves of the internal combustion engine.

5. (Once Amended) An exhaust gas purifying system as claimed in claim 1, wherein the device for decreasing the reducing components other than hydrogen in at least one of combustion gas and exhaust gas includes a CO and HC selective oxidation catalyst containing zirconium oxide, for selectively oxidizing CO and HC.

6. (Once Amended) An exhaust gas purifying system as claimed in claim 1, wherein the device for suppressing consumption of hydrogen in at least one of combustion gas and exhaust gas is a catalyst containing solid acid zirconium oxide.

7. (Once Amended) An exhaust gas purifying system comprising:

a NOx treating catalyst for reducing NOx disposed in an exhaust gas passageway of a combustion device, to reduce NOx in presence of reducing components in exhaust gas; and

a hydrogen enriching device disposed upstream of said NOx treating catalyst with respect to flow of exhaust gas from the combustion device and arranged to increase a ratio of hydrogen to total reducing components in at least one of combustion gas and exhaust gas so as to meet relations represented by following formulae (1) and (2), when reduction of NOx is carried out by said NOx treating catalyst:

$$[H2 / TR]d > [H2 / TR]u \quad ...(1)$$

$$[H2 / TR]d \geq 0.3 \quad ...(2)$$

where [H2 / TR]u is a ratio between a concentration [H2]u of hydrogen and a concentration [TR]u of total reducing components in at least one of exhaust gas in the exhaust gas passageway upstream of said hydrogen enriching device and combustion gas in a state before undergoing the hydrogen ratio increasing by said hydrogen enriching device; and [H2 / TR]d is a ratio between a concentration [H2]d of hydrogen and a concentration [TR]d

of total reducing components in exhaust gas in the exhaust gas passageway upstream of the NOx treating catalyst and downstream of said hydrogen enriching device,

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wherein the hydrogen enriching device is a device for introducing hydrogen into at least one of combustion gas and exhaust gas and for supplying hydrogen-contained gas produced by using hydrocarbon fuel and air, from outside of the exhaust passageway, and wherein the hydrogen contained gas is produced in the combustion device.

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13. (Once Amended) An exhaust gas purifying system of a multiple step control type in combination with an internal combustion engine having an exhaust gas passageway,

said engine including a combustion system having a combustion control device for

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controlling at least one selected from the group consisting of operating parameters of the engine and combinations of the operating parameters, the operating parameters including fuel injection timing, spark timing, opening and closing timing of intake and exhaust valves of the engine;

said exhaust gas purifying system including

a NOx treating catalyst for reducing NOx disposed in the exhaust gas passageway to reduce NOx in presence of reducing components in exhaust gas, and a hydrogen enriching device disposed upstream of said NOx treating catalyst with respect to flow of exhaust gas and including at least one selected from the group consisting of a hydrogen producing catalyst containing at least one noble metal, a CO and HC selective oxidation catalyst containing zirconium oxide, a catalyst containing solid acid zirconium oxide, and a device for supplying hydrogen-contained gas produced by using hydrocarbon fuel and air, from outside of the exhaust passageway, said hydrogen-contained gas supplying device including at least one of a first hydrogen-contained gas supplying device having a hydrogen-contained gas producing catalyst for promoting reaction for producing hydrogen-contained gas from the hydrocarbon fuel, and a device for supplying the hydrocarbon fuel and air to the catalyst, and a second hydrogen-contained gas supplying

device for producing hydrogen-contained gas by using hydrocarbon fuel and exhaust gas under heat,

said hydrogen enriching device being arranged to increase a ratio of hydrogen to total reducing components in at least one of combustion gas and exhaust gas so as to meet relations represented by the following formulae (1) and (2), when reduction to NOx is carried out by said NOx treating catalyst:

$$[H2 / TR]d > [H2 / TR]u \quad ...(1)$$

$$[H2 / TR]d \geq 0.3 \quad ...(2)$$

where [H2 / TR]u is a ratio between a concentration [H2]u of hydrogen and a concentration [TR]u of total reducing components in at least one of exhaust gas in the exhaust gas passageway upstream of said hydrogen enriching device and combustion gas in a state before undergoing the hydrogen ratio increasing by said hydrogen enriching device; and [H2 /TR]d is a ratio between a concentration [H2]d of hydrogen and concentration [TR]d of total reducing components in exhaust gas in the exhaust gas passageway upstream of the NOx treating catalyst and downstream of said hydrogen enriching device, and wherein the hydrogen enriching device produces hydrogen in the engine.

16. (Once Amended) An exhaust gas purifying system as claimed in Claim 15, wherein the CO and HC selective oxidation catalyst further contains palladium and cerium oxide, the palladium being carried in an amount ranging from 20 to 80 % by weight of total palladium on cerium oxide.

19. (Once Amended) An exhaust gas purifying system comprising:

a NOx treating catalyst for reducing NOx disposed in an exhaust gas passageway of a combustion device, to reduce NOx in presence of reducing components in exhaust gas; and

a hydrogen enriching device disposed upstream of said NOx treating catalyst with respect to flow of exhaust gas from the combustion device and arranged to increase a ratio of hydrogen to total reducing components in at least one of combustion gas and

exhaust gas so as to meet relations represented by following formulae (1) and (2), when reduction of NOx is carried out by said NOx treating catalyst:

$$[H2 / TR]d > [H2 / TR]u \quad ...(1)$$

$$[H2 / TR]d \geq 0.3 \quad ...(2)$$

where [H2 / TR]u is a ratio between a concentration [H2]u of hydrogen and a concentration [TR]u of total reducing components in at least one of exhaust gas in the exhaust gas passageway upstream of said hydrogen enriching device and combustion gas in a state before undergoing the hydrogen ratio increasing by said hydrogen enriching device; and [H2 / TR]d is a ratio between a concentration [H2]d of hydrogen and a concentration [TR]d of total reducing components in exhaust gas in the exhaust gas passageway upstream of the NOx treating catalyst and downstream of said hydrogen enriching device,

wherein said hydrogen enriching device is a device for producing hydrogen in at least one of combustion gas and exhaust gas and includes a hydrogen producing catalyst containing at least one noble metal, wherein the hydrogen producing catalyst has a function to produce hydrogen from HC and CO in at least one of combustion gas and exhaust gas, and

wherein the hydrogen producing catalyst includes a first catalytic component for oxidizing HC and CO to decrease oxygen, said first catalytic component being disposed in a first section of the hydrogen producing catalyst, and a second catalytic component for producing hydrogen and disposed in a second section of the hydrogen producing catalyst, the second section being located downstream of the first section with respect to flow of exhaust gas, so that an amount of oxygen to be contacted with the second catalytic component is decreased.

28. (Once Amended) An exhaust gas purifying system comprising:

a NOx treating catalyst for reducing NOx disposed in an exhaust gas passageway of a combustion device, to reduce NOx in presence of reducing components in exhaust gas; and

means for enriching hydrogen disposed upstream of said NOx treating catalyst with respect to flow of exhaust gas from the combustion device, said hydrogen enriching means is for increasing a ratio of hydrogen to total reducing components in at least one of combustion gas and exhaust gas so as to meet relations represented by the following formulae (1) and (2), when reduction of NOx is carried out by said NOx treating catalyst:

$$[H2/TR]d > [H2/TR]u \ldots (1)$$

$$[H2 / TR]d \geq 0.3 \ldots (2)$$

where [H2 / TR]u is a ratio between a concentration [H2]u of hydrogen and a concentration [TR]u of total reducing components in at least one of exhaust gas in the exhaust gas passageway upstream of said hydrogen enriching device and combustion gas in a state before undergoing the hydrogen ratio increasing by said hydrogen enriching means; and [H2 / TR]d is a ratio between a concentration [H2]d of hydrogen and a concentration [TR]d of total reducing components in exhaust gas in the exhaust gas passageway upstream of the NOx treating catalyst and downstream of said hydrogen enriching means,
wherein said means for enriching hydrogen is at least one selected from the group consisting of a means for producing hydrogen in at least one of combustion gas and exhaust gas, a means for decreasing the reducing components other than hydrogen in at least one of combustion gas and exhaust gas, and a means for suppressing consumption of hydrogen in at least one of combustion gas and exhaust gas.

29. (Once Amended) A method of purifying exhaust gas from a combustion device provided with an exhaust gas purifying system including a NOx treating disposed in an exhaust gas passageway of the combustion device, a NOx treating catalyst reducing NOx in presence of reducing components in exhaust gas, said method comprising:

increasing a ratio of hydrogen to total reducing components in at least one of combustion gas and exhaust gas to be supplied to the NOx treating catalyst so as to meet

relations represented by the following formulae (1) and (2), when reduction of NOx is carried out by said NOx treating catalyst:

$$[H2 / TR]d > [H2 / TR]u \ldots(1)$$

$$[H2 / TR]d \geq 0.3 \ldots(2)$$

where [H2 / TR]u is a ratio between a concentration [H2]u of hydrogen and a concentration [TR]u of total reducing components in at least one of exhaust gas in the exhaust gas passageway upstream of said hydrogen enriching and combustion gas in a state before undergoing the hydrogen ratio increasing; and [H2 / TR]d is a ratio between a concentration [H2]d of hydrogen and a concentration [TR]d of total reducing components in exhaust gas in the exhaust gas passageway upstream of the NOx treating catalyst and in a state after undergoing the hydrogen ratio increasing,

wherein said ratio of hydrogen to total reducing components is increased by at least one selected from the group consisting of producing hydrogen in at least one of combustion gas and exhaust gas, decreasing the reducing components other than hydrogen in at least one of combustion gas and exhaust gas, and suppressing consumption of hydrogen in at least one of combustion gas and exhaust gas.

Please add new claims 30-36 as follows.

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30. (New) An exhaust gas purifying system comprising:

a NOx treating catalyst for reducing NOx disposed in an exhaust gas passageway of a combustion device, to reduce NOx in presence of reducing components in exhaust gas; and

a hydrogen enriching device disposed upstream of said NOx treating catalyst with respect to flow of exhaust gas from the combustion device and arranged to increase a ratio of hydrogen to total reducing components in at least one of combustion gas and exhaust gas so as to meet relations represented by following formulae (1) and (2), when reduction of NOx is carried out by said NOx treating catalyst:

$$[H2 / TR]d > [H2 / TR]u \ldots(1)$$

[H2 / TR]d ≥ 0.3 ...(2)

where [H2 / TR]u is a ratio between a concentration [H2]u of hydrogen and a concentration [TR]u of total reducing components in at least one of exhaust gas in the exhaust gas passageway upstream of said hydrogen enriching device and combustion gas in a state before undergoing the hydrogen ratio increasing by said hydrogen enriching device; and [H2 / TR]d is a ratio between a concentration [H2]d of hydrogen and a concentration [TR]d of total reducing components in exhaust gas in the exhaust gas passageway upstream of the NOx treating catalyst and downstream of said hydrogen enriching device,

wherein said hydrogen enriching device produces hydrogen out of at least one of combustion gas and exhaust gas.

31. (New) An exhaust gas purifying system as claimed in claim 30, wherein said hydrogen enriching device is a device for suppressing consumption of hydrogen in exhaust gas.

32. (New) An exhaust gas purifying system as claimed in claim 30, wherein said hydrogen enriching device is a device for decreasing the reducing components other than hydrogen in at least one of combustion gas and exhaust gas.

33. (New) An exhaust gas purifying system comprising:

a NOx treating catalyst for reducing NOx disposed in an exhaust gas passageway of a combustion device, to reduce NOx in presence of reducing components in exhaust gas; and

a hydrogen enriching device disposed upstream of said NOx treating catalyst with respect to flow of exhaust gas from the combustion device and arranged to increase a ratio of hydrogen to total reducing components in at least one of combustion gas and exhaust gas so as to meet relations represented by following formulae (1) and (2), when reduction of NOx is carried out by said NOx treating catalyst:

[H2 / TR]d > [H2 / TR]u ...(1)

[H2 / TR]d ≥ 0.3 ...(2)

where [H2 / TR]u is a ratio between a concentration [H2]u of hydrogen and a concentration [TR]u of total reducing components in at least one of exhaust gas in the exhaust gas passageway upstream of said hydrogen enriching device and combustion gas in a state before undergoing the hydrogen ratio increasing by said hydrogen enriching device; and [H2 / TR]d is a ratio between a concentration [H2]d of hydrogen and a concentration [TR]d of total reducing components in exhaust gas in the exhaust gas passageway upstream of the NOx treating catalyst and downstream of said hydrogen enriching device,

wherein the hydrogen producing ~~catalyst~~ device produces hydrogen from HC and CO in at least one of combustion gas and exhaust gas.

34. (New) An exhaust gas purifying system as claimed in claim 33, wherein the hydrogen producing ~~catalyst~~ device includes a first catalytic component for oxidizing HC and CO to decrease oxygen, said first catalytic component being disposed in a first section of the hydrogen producing ~~catalyst~~ device, and a second catalytic component for producing hydrogen and disposed in a second section of the hydrogen producing ~~catalyst~~ device, the second section being located downstream of the first section with respect to flow of exhaust gas, so that an amount of oxygen contacting the second catalytic component is decreased.

35. (New) An exhaust gas purifying system comprising:

a NOx treating catalyst for reducing NOx disposed in an exhaust gas passageway of a combustion device, to reduce NOx in presence of reducing components in exhaust gas; and

a hydrogen enriching device disposed upstream of said NOx treating catalyst with respect to flow of exhaust gas from the combustion device and arranged to increase a ratio of hydrogen to total reducing components in at least one of combustion gas and exhaust gas so as to meet relations represented by following formulae (1) and (2), when reduction of NOx is carried out by said NOx treating catalyst:

$$[H2 / TR]d > [H2 / TR]u \quad ...(1)$$

$$[H2 / TR]d \geq 0.3 \quad ...(2)$$

where [H2 / TR]u is a ratio between a concentration [H2]u of hydrogen and a concentration [TR]u of total reducing components in at least one of exhaust gas in the exhaust gas passageway upstream of said hydrogen enriching device and combustion gas in a state before undergoing the hydrogen ratio increasing by said hydrogen enriching device; and [H2 / TR]d is a ratio between a concentration [H2]d of hydrogen and a concentration [TR]d of total reducing components in exhaust gas in the exhaust gas passageway upstream of the NOx treating catalyst and downstream of said hydrogen enriching device, and wherein both the NOx treating catalyst and the hydrogen enriching device are disposed in the exhaust passageway and wherein exhaust gas passes through the hydrogen enriching device.

36. (New) An exhaust gas purifying system as claimed in claim 35, wherein said hydrogen enriching device is arranged to increase a ratio of hydrogen to carbon monoxide in the total reducing components in exhaust gas so as to meet a relation represented by the following formula [H2 / CO]d > 1 where [H2 / CO]d is a ratio between a concentration [H2]d of hydrogen and a concentration [CO]d of carbon monoxide in the total reducing components in exhaust gas in the exhaust gas passageway immediately upstream of the NOx treating catalyst and downstream of said hydrogen enriching device, when reduction of NOx is carried out by said NOx treating catalyst.